

[3 hrs]

[80 Marks]

- Note: 1. Question 1 is compulsory
 2. Answer any three out of remaining question
 3. Assume suitable data where required.

Q1

- A. What is PEAS descriptor? Give PEAS descriptor for robot maid for cleaning the house. [5]
- B. Discuss different applications of AI. [5]
- C. Draw and explain architecture of Expert System. [5]
- D. In a class, there are 80% of the students who like English and 30% of the students who likes English and Mathematics, and then what is the percentage of students those who like Math, also like English? Solve it using Conditional probability. [5]

Q2

- A. Define chromosome, selection, fitness function, cross over and mutation as used in Genetic Algorithm. Explain how Genetic Algorithm in works. [10]
- B. Draw and describe the architecture of Utility based agent. How is it different from Model based agent? [10]

Q3

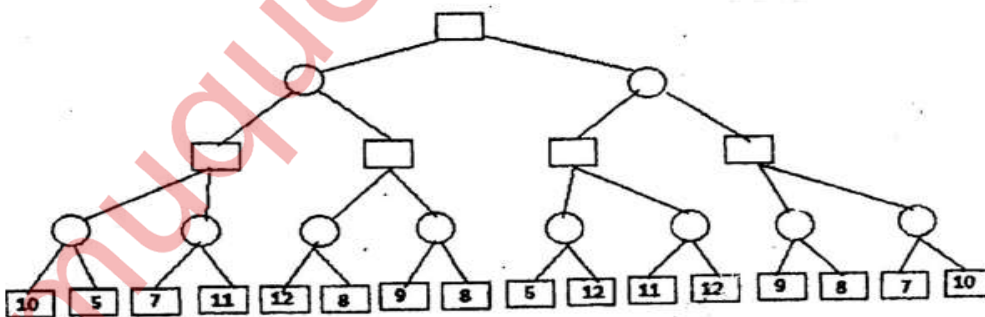
- A. Explain A* algorithm in detail. [10]
- B. Define belief Network. Describe the steps of constructing belief network with an example. [10]

Q4

- A. Illustrate forward chaining and backward chaining in propositional logic with example. [10]
- B. Explain different types of learning in AI. [10]

Q5

- A. Consider the following axioms
 All people who are graduating are happy.
 All happy people smile.
 Someone is graduating.
 Prove that "Is someone Smiling?" using resolution technique. Draw resolution tree. [10]
- B. Explain Alpha-beta pruning algorithm. Apply alpha beta pruning on following example considering first node as MAX. [10]



Q.6

- A. Explain hill climbing algorithm with example. Explain the problems faced by hill climbing algorithm. [10]
- B. Explain total order planning and partial order planning in detail with example. [10]
